Geosyntec consultants

289 Great Road, Suite 105
Acton, Massachusetts 01720
PH 978.263.9588
FAX 978.263.9594
www.geosyntec.com

Memorandum

Date: **16 February 2012**

To: **Bruce R. Thompson, *de maximis, inc.***

From: **Todd Creamer and Kenan Warner, Geosyntec Consultants, Inc.**

Subject: **Scope of Work and Cost Estimate**
Vapor Intrusion Assessment at 2250 Main Street
NMI Superfund Site, Concord, Massachusetts

This memorandum summarizes Geosyntec's proposed scope of work and estimated cost to conduct environmental sampling in support of an off-site vapor intrusion investigation at 2250 Main Street (the structure) in Concord, Massachusetts. This work is a follow-up to a study conducted by Geosyntec at the structure in 2009-2010, and will provide additional data for evaluating the vapor intrusion pathway. For an estimated cost of $15,400, this scope of work includes:

- A walk-through of the structure to identify potential indoor sources of volatile organic compounds (VOCs) that may require removal prior to the vapor intrusion investigation;
- A sampling event which includes simultaneous collection of one outdoor air sample and two indoor air samples from the lowest level of the structure during the heating season as recommended in the USEPA's comment #5 on the previous draft of this workplan, (plus one duplicate indoor air sample);
- Collection of one indoor sub-slab soil gas sample immediately following the collection of outdoor and indoor air samples (plus one duplicate);
- A second identical sampling event conducted after the heating season;
- Laboratory analysis of ten (12) samples by Air Toxics, LTD, of Folsom, California; and
- Production of a memorandum to summarize the findings of this field study and, in concert with previous data, provide an evaluation of the vapor intrusion pathway for trichloroethene (TCE) from sub-slab soil gas to indoor air.

Indoor and outdoor air samples will be collected into 6-liter (L) SUMMA™ canisters, individually-certified to Select Ion Monitoring (SIM) reporting limits of approximately 0.02 parts per billion by volume (ppbv), equivalent to approximately 0.1 micrograms per cubic meter ($\mu g/m^3$) for TCE, and equipped with 24-hour flow controllers calibrated by the laboratory.

One indoor air sample will be located in the mechanical room, and one near the center of the structure near the base of the stairwell similar to the locations of sub-slab samples collected in previous sampling events. Sampler intakes will be positioned approximately three (3) to five (5) feet above the ground. The outdoor air sampling location will be on top of the stone wall bordering an outdoor stairway between the upper and lower parking lots adjacent to 2250 Main Street on the west side of the structure; the same sampling location was used during both previous sampling events in 2009 and 2010. The sample intake will be approximately three (3) to five (5) feet above ground.

One (1) sub-slab soil gas sample will be collected from the mechanical room immediately following collection of indoor air samples. As recommended in the USEPA's comment #1 on the previous draft of this workplan, the mechanical room is where the highest concentrations of TCE were previously identified in samples of sub-slab soil gas. A temporary sub-slab soil gas probe will be installed in the same way as sub-slab probes were previously installed at this structure, following the guidance from the Reference Handbook for Site-Specific Assessment of Subsurface Vapor Intrusion to Indoor Air (EPRI, 2005). The sample location is indicated on Figure 1. After installation, and after the quick-setting, hydraulic swelling cement has cured for at least 15 minutes, the sub-slab probe will be purged using a lung box. The purged gas will be field-screened using a photoionization detector, a landfill gas meter equipped with methane, oxygen, and carbon dioxide sensors, and a helium detector. Once the field-screening data are shown to be repeatable to within approximately +/- 10%, and the helium concentration in purged soil gas is less than 5% of the helium concentration in the shroud over the sampling equipment (approximately three to six liters), a sample will be collected into a 1 L SUMMA™ canister equipped with a 5-micron inline filter and a 5-minute flow controller (i.e., 200 milliliters per minute) calibrated by the laboratory. This SUMMA™ canister and flow controller will be batch-certified clean by the laboratory to a reporting limit of approximately 0.5 ppbv (~2.7 $\mu g/m^3$).

The samples will be analyzed for TCE, which was the only analyte previously detected in sub-slab soil gas at the structure.

Raw data received from the laboratory will be validated by Geosyntec to a Tier II standard and uploaded to the project database. Within approximately 30 business days of receipt of validated data after the first round of sampling, Geosyntec will compose a draft data summary for review by de maximis. Within approximately 30 business days of receipt of validated data after the second round of sampling, Geosyntec will compose a draft report for review by de maximis. The report will include a discussion of the vapor intrusion pathway based on both sampling events and on the most recent results of nearby groundwater sampling, anticipated to be conducted in

May 2012. Other information relevant to the evaluation, such as historical groundwater, soil gas or outdoor air sample results, may be included in the evaluation, as appropriate.

The estimated cost to perform this work is $15,400. This cost estimate includes field deployment and retrieval of SUMMA™ canisters, sub-slab soil gas sampling, laboratory analyses and other associated laboratory costs, Tier II data validation, project management and approximately 12 hours for communication and preparation of a summary report. Geosyntec is available to conduct this work upon receipt of a signed authorization and scheduling with the owner of the subject structure.

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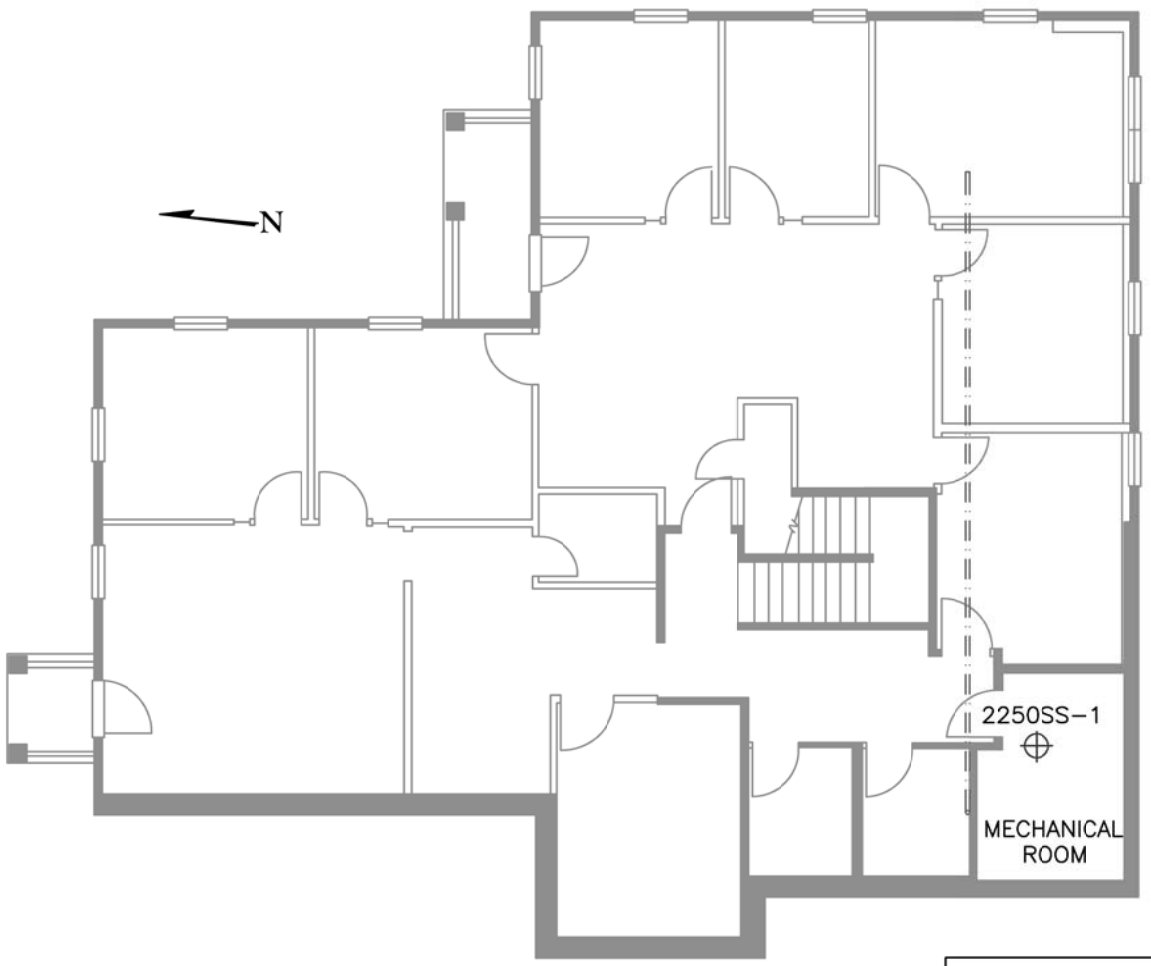
REFERENCES

Electric Power Research Institute (EPRI), 2005. *Reference Handbook for Site-Specific Assessment of Subsurface Vapor Intrusion to Indoor Air. March.* 1008492

United States Environmental Protection Agency, 2002. *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance).* November. EPA530-D-02-004.



LEGEND

⊕ SUB-SLAB SOIL GAS SAMPLING POINT

APPROXIMATE LOCATION OF SUB-SLAB RADON VENT PIPE

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LOWER LEVEL FLOOR PLAN
2250 MAIN STREET
—
NUCLEAR METALS, INC.
CONCORD, MA

DATE:	02FEB2012	SCALE:	1":12'
PROJECT NO.	BR0090	FILE NO.	FLOOR_PLANS_020212.DWG
DOCUMENT NO.	—	FIGURE NO.	1

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